OBSERVATIONS & RECOMMENDATIONS

After reviewing data collected from **PLEASANT LAKE, DEERFIELD,** the program coordinators recommend the following actions.

FIGURE INTERPRETATION

- Figure 1: These graphs illustrate concentrations of chlorophyll-a in the water column. Algae are microscopic plants that are a natural part of lake ecosystems. Algae contain chlorophyll-a, a pigment necessary for photosynthesis. A measure of chlorophyll-a can indicate the abundance of algae in a lake. The historical data (the bottom graph) show a *stable* in-lake chlorophyll-a trend. There was a slight increase in chlorophyll concentrations in August possibly due to a slight increase in phosphorus concentrations at that time. Mean chlorophyll concentrations have remained well below the NH mean reference line since 1992! While algae are present in all lakes, an excess amount of any type is not welcomed. Concentrations can increase when there are external and internal sources of phosphorus, which is the nutrient algae depend upon for growth. It's important to continue the education process and keep residents aware of the sources of phosphorus and how it influences lake quality.

- Figure 2: Water clarity is measured by using a Secchi disk. Clarity, or transparency, can be influenced by such things as algae, sediments from erosion, and natural colors of the water. The graphs on this page show historical and current year data. The lower graph shows a *stable* trend in lake transparency. There was a slight decrease in transparency from last season, but once again, results were above the average value for NH lakes. Water clarity decreased in June and August. There were many rainstorms prior to sampling in June, which likely lowered the transparency. The slight increase in chlorophyll concentrations in August caused clarity to be lower at that time. The 2000 sampling season was considered to be wet and, therefore, average transparency readings are expected to be slightly lower than last year's readings. Higher amounts of rainfall usually cause more eroding of sediments into the lake and streams, thus decreasing clarity.

- Figure 3: These figures show the amounts of phosphorus in the epilimnion (the upper layer in the lake) and the hypolimnion (the lower layer); the inset graphs show current year data. Phosphorus is

the limiting nutrient for plants and algae in New Hampshire waters. Too much phosphorus in a lake can lead to increases in plant growth over time. These graphs show a *very stable* trend for in-lake phosphorus levels. Hypolimnetic phosphorus concentrations were elevated in September. Dissolved oxygen was depleted in the lower water layer and this can cause phosphorus bound to the sediments to be released into the water column. Phosphorus concentrations in the epilimnion were stable this season, and remained below the NH median. One of the most important approaches to reducing phosphorus levels is educating the public. Humans introduce phosphorus to lakes by several means: fertilizing lawns, septic system failures, and detergents containing phosphates are just a few. Keeping the public aware of ways to reduce the input of phosphorus to lakes means less productivity in the lake. Contact the VLAP coordinator for tips on educating your lake residents or for ideas on testing your watershed for phosphorus inputs.

OTHER COMMENTS

- In June of 2000, the blue-green alga *Anabaena* was the third most abundant species in the plankton sample (Table 2). Monitor's noted that there were thunderstorms and frequent rain events prior to testing which likely washed in excess nutrients from the watershed. Blue-green algae can reach nuisance levels when sufficient nutrients and favorable environmental conditions are present. While overall algal abundance continues to be low in the lake, the presence of these indicator species should serve as a reminder of the lake's delicate balance. Continued care to protect the watershed by limiting or eliminating fertilizer use on lawns, keeping the lake shoreline natural, and properly maintaining septic systems and roads will keep algae populations in balance.

- Total phosphorus in Veasey Brook was extremely high in September (Table 8). The extremely high turbidity of the sample (Table 11) caused the phosphorus results to be inaccurate. A large amount of phosphorus can be attached to organic debris, which can contaminate samples and yields inaccurate results. Please only sample water that has sufficient flow for a clean sample.

- Phosphorus concentrations in 107 Inlet were elevated in June (Table 8). Spring rain and snowmelt likely helped to wash excess nutrients into the Inlet. Along with this the sample was slightly turbid (Table 11); both of which can raise phosphorus concentrations.

- **Please note** on several occasions this summer some of the stations phosphorus levels were recorded as less than 5 µg/L (see Chemical Raw Data Report). The NHDES Laboratory Services adopted a new method of analyzing total phosphorus this year and the lowest value that can be recorded is 'less than 5 µg/L'. If this caused an increase

in the average phosphorus for either of the layers we would like to remind the association that a reading of 5 µg/L is still considered low for New Hampshire's waters.

- The Loon Cove inlet continues to have high total phosphorus concentrations (Table 8). The mean value this year was lower than that of the 1999 season. This inlet is fed by a natural wetland, which is likely the cause of the high phosphorus concentrations. Amy Smagula plans to bracket the stream in the early spring to help determine the cause of the high concentration.

- Conductivity in Veasey Brook was unusually high in March (Table 6). Road salting of Route 107 likely has an influence on conductivities in early spring when the snow is first starting to melt.

- The pH of Farrelly Brook was unusually high in September (Table 4). We suspect that the water was stagnant and flow was low at that time judging from the high turbidity of the sample (Table 11). Also the conductivity was high (Table 6) indicating that nutrients had been accumulated and then concentrated by the low water flow. The accumulation of salts and minerals decreases the concentration of hydrogen ions in the water, which causes it to become less acidic, therefore raising the pH.

- The process of decomposition in the sediments depletes dissolved oxygen on the bottom of thermally stratified lakes. As bacteria break down organic matter, they deplete oxygen in the water. When oxygen gets below 1 mg/L, phosphorus normally bound up in the sediments may be released into the water column, a process that is referred to as *internal loading*. Depleted oxygen in the hypolimnion usually occurs as the summer progresses. Thanks to the diligent monitoring efforts this season we were able to track this process as it was occurring in the lake (Table 9). On June 8th oxygen was depleted in the last two meters of the lake, but by the 21st oxygen levels were above 4.0 mg/L in the hypolimnion. On July 13th, oxygen levels were approaching the critical level of 1.0 mg/L at 14 meters, and were depleted below this point one meter off the bottom. By the 25th of July oxygen was depleted 4 meters off the bottom (up to 14 meters). Oxygen depletion continued to be 4 meters off the bottom early in August, but by late August it was 6 meters off the bottom (up to 12 meters). Finally, by September oxygen was depleted all the way up to the epilimnion (upper water layer), which means depletion reached through the hypolimnion (lower water layer) and into the metalimnion (middle water layer). This series of events explains the higher phosphorus in the hypolimnion (lower water layer) versus the epilimnion (upper layer). Since an internal source of phosphorus to the lake is present, limiting or eliminating external phosphorus sources in the lake's watershed is even more important for lake protection.

- The lake and watershed diagnostic study was completed in September of this year. Amy Smagula is now preparing the report from this special study. It is anticipated that the report will be completed by June 2001 for presentation at the lake association's annual meeting.

NOTES

- Monitor's Note (6/8/00): State put a board in the dam and then rain-hence lake above normal. Amy Smagula was not here for sampling today therefore the wind was breezy versus gale force wind when she is here.

- Monitor's Note (6/21/00): Scattered thunderstorms and light rain events last few days.

- Monitor's Note (7/13/00): 7/11 sampling not done due to winds and waves. Two anchors would not hold boat. 7/13 session to avoid wind.

- Biologist's Note (7/13/00): Did two plankton hauls at 7 and 8 meters due to dissolved oxygen bump between 7 and 8 meters.

USEFUL RESOURCES

The Blue Green Algae. North American Lake Management Society, 1989. (608) 233-2836 or www.nalms.org

A Brief History of Lakes, NH Lakes Association pamphlet, (603) 226-0299 or www.nhlakes.org

Lake Protection Tips: Some Do's and Don'ts for Maintaining Healthy Lakes, WD-BB-9, NHDES Fact Sheet, (603) 271-3503 or www.state.nh.us

Anthropogenic Phosphorus and New Hampshire Waterbodies, NHDES-WSPCD-95-6, NHDES Booklet, (603) 271-3503

Phosphorus in Lakes, WD-BB-20, NHDES Fact Sheet, (603) 271-3503 or www.state.nh.us

Vegetated Phosphorus Buffer Strips, NH Lakes Association pamphlet, (603) 226-0299 or www.nhlakes.org

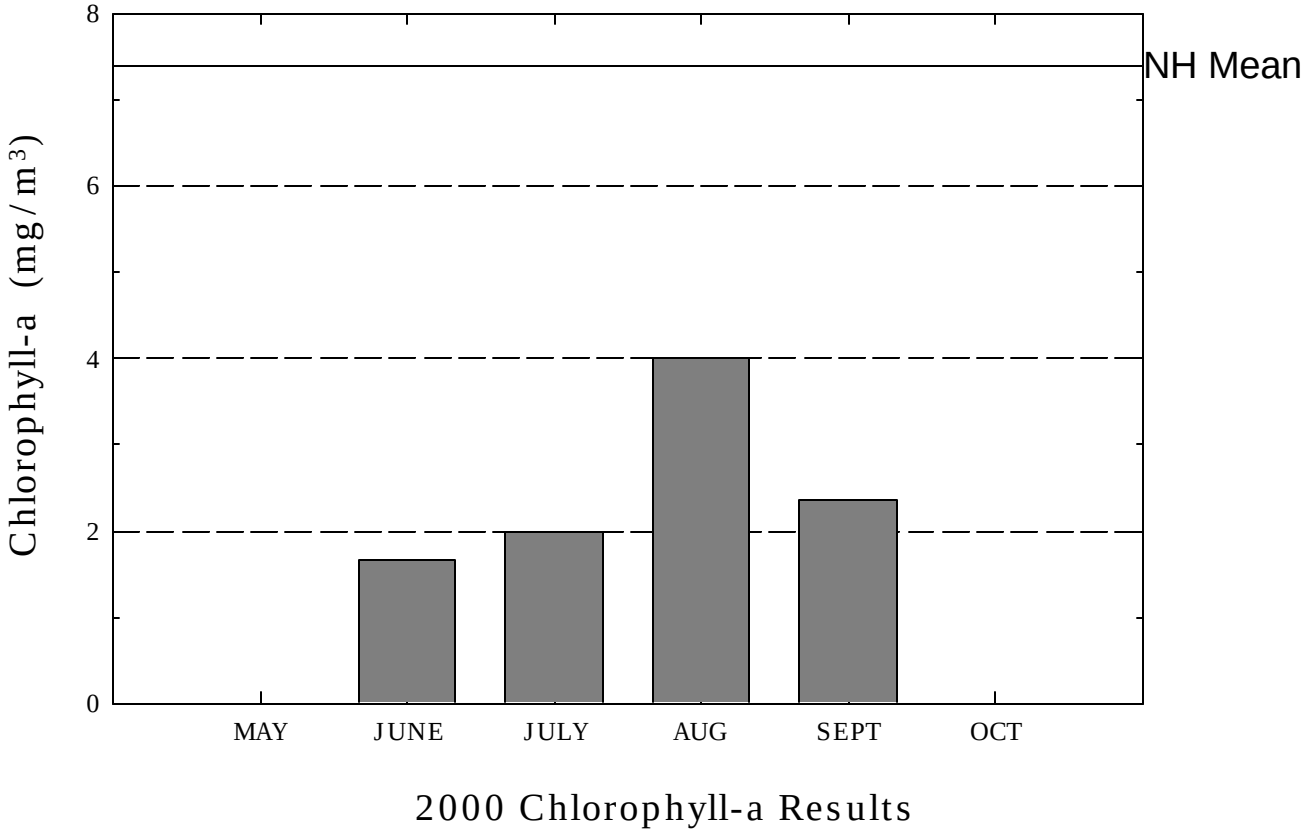
The Watershed Guide to Cleaner Rivers, Lakes, and Streams, Connecticut River Joint Commissions, 1995. (603) 826-4800

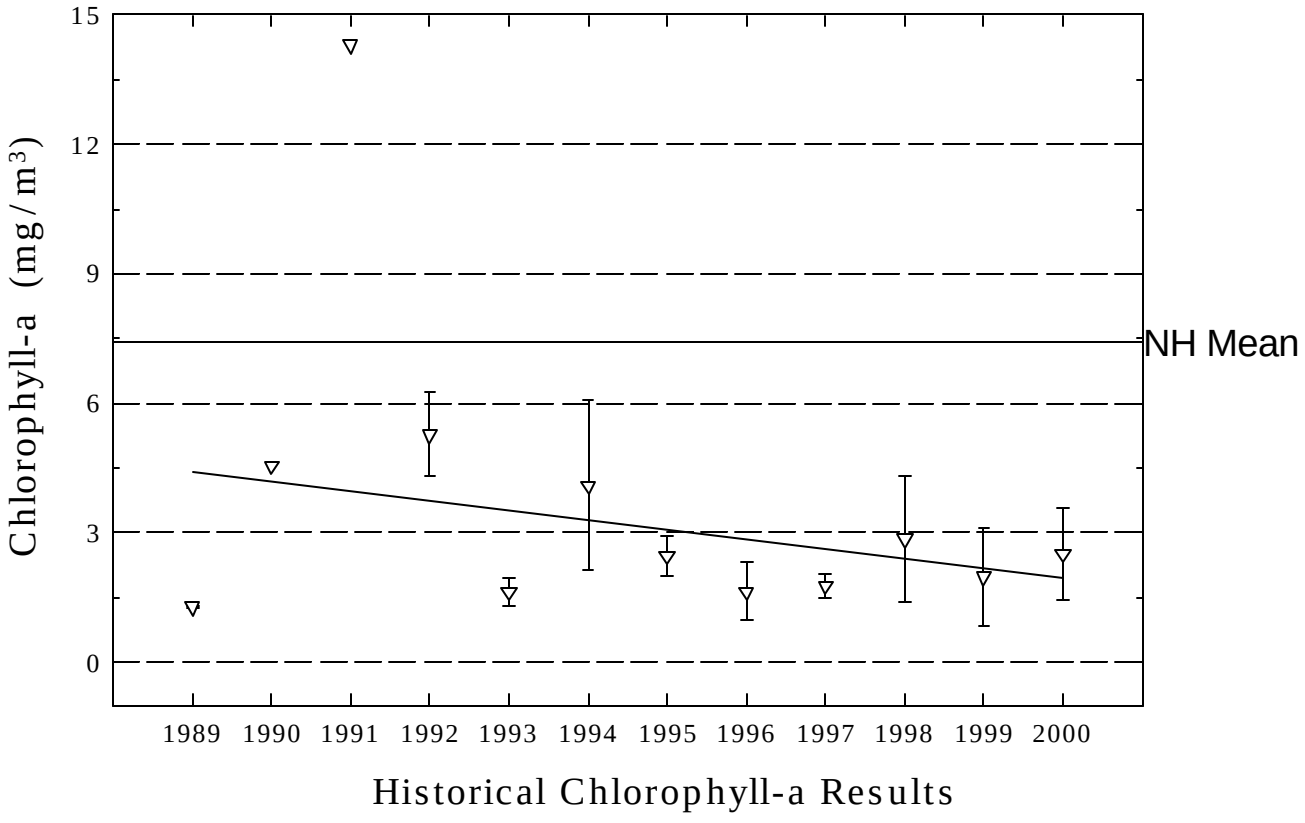
Road Salt and Water Quality, WD-WSQB-7, NHDES Fact Sheet, (603) 271-3503 or www.state.nh.us

Snow Disposal Guidelines, WD-WSQB-6, NHDES Fact Sheet, (603) 271-3503 or www.state.nh.us

Pleasant Lake, Deerfield

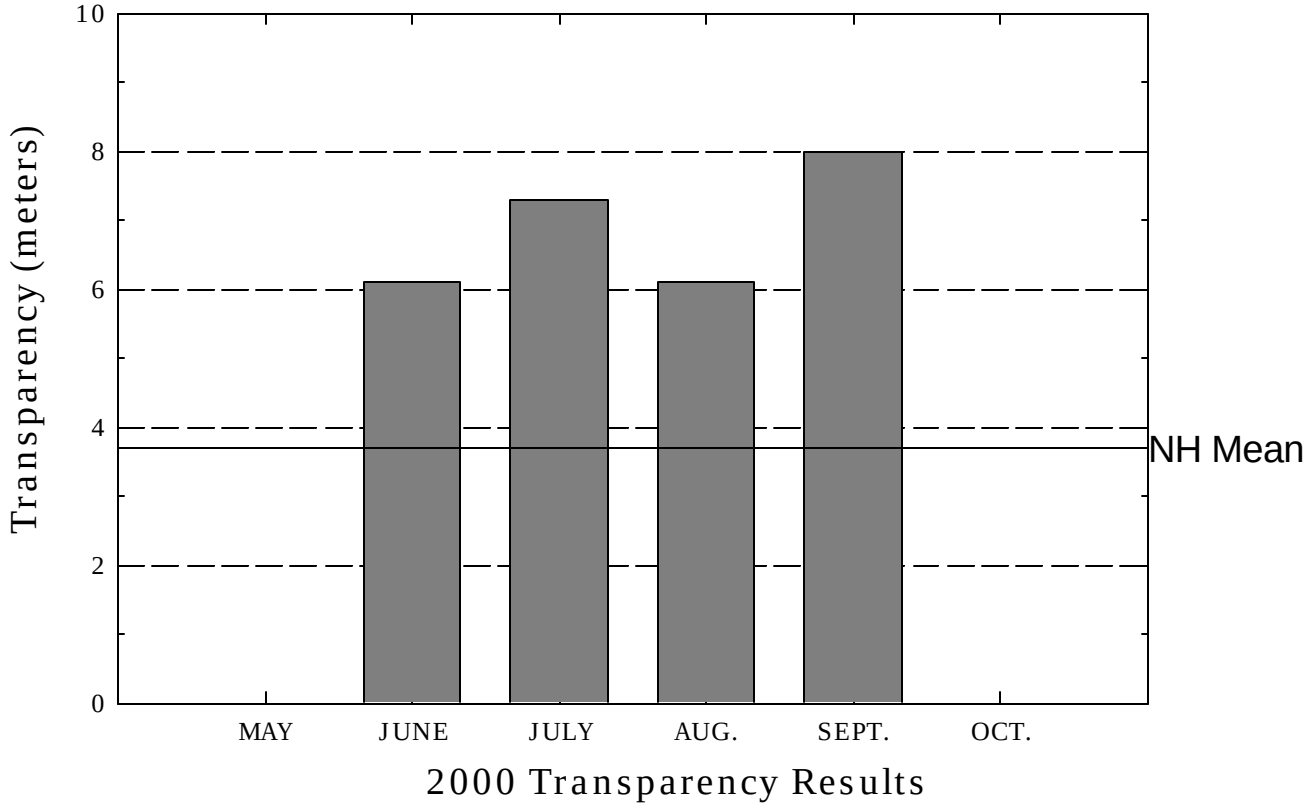
Figure 1. Monthly and Historical Chlorophyll-a Results

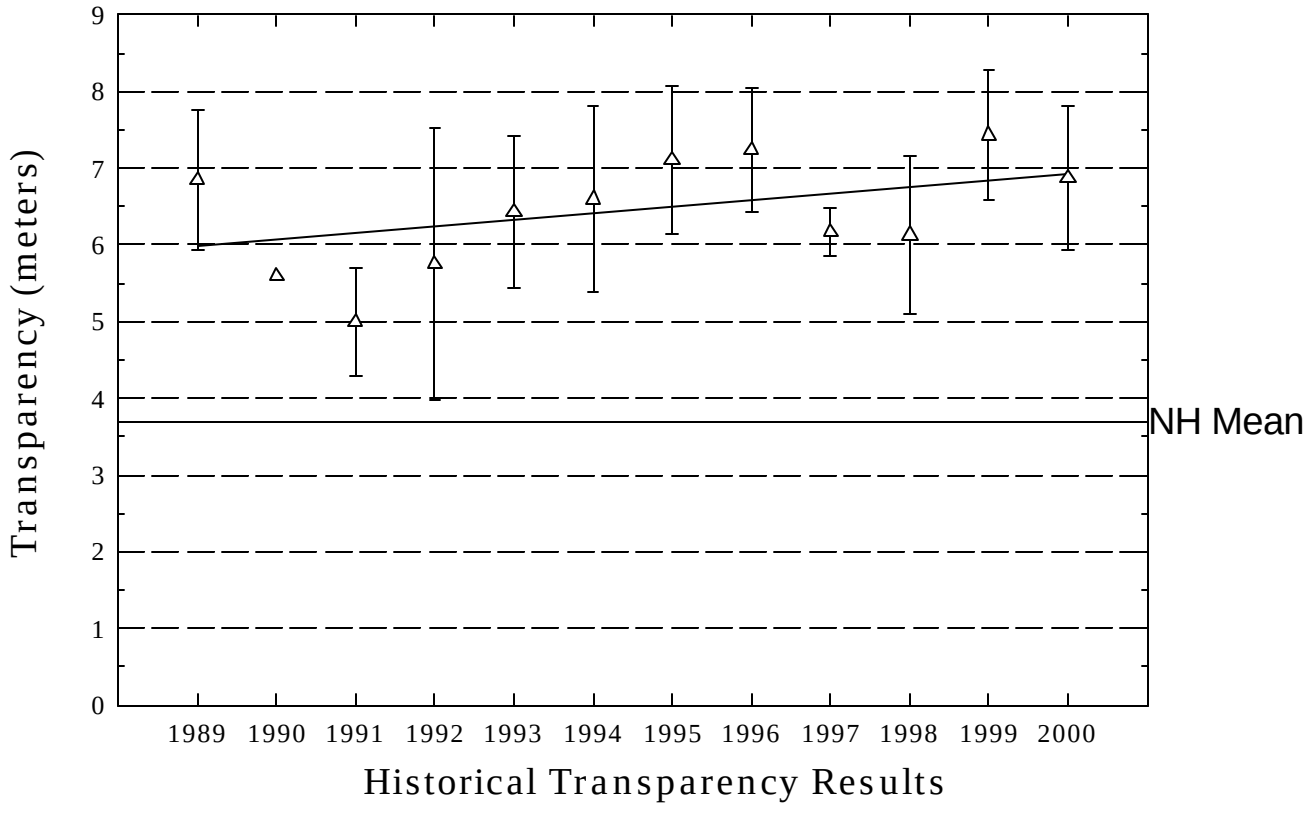




Pleasant Lake, Deerfield

Figure 2. Monthly and Historical Transparency Results





Pleasant Lake, Deerfield

Figure 3. Monthly and Historical Total Phosphorus Data.

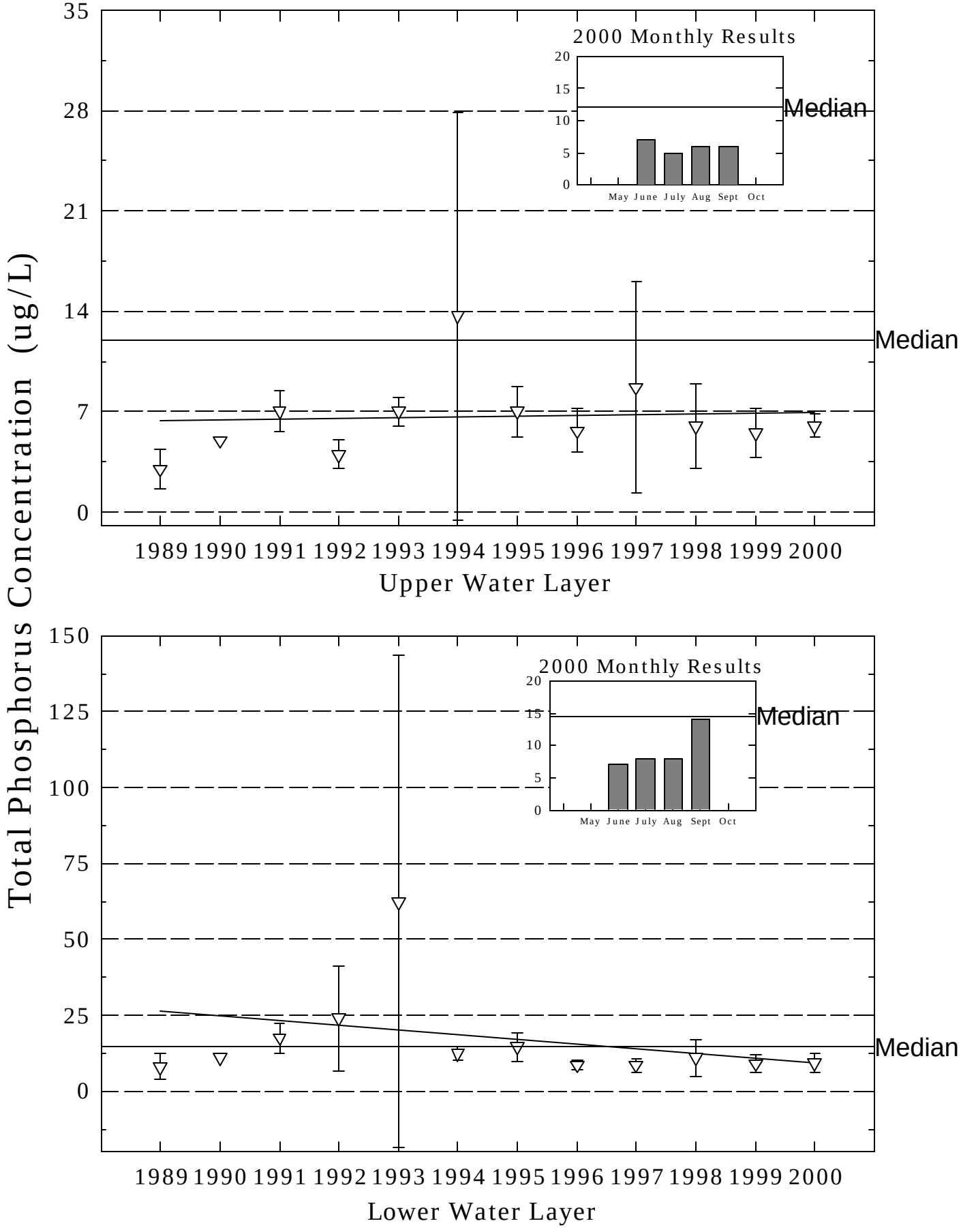


Table 1.

PLEASANT LAKE

DEERFIELD

Chlorophyll-a results (mg/m^3) for current year and historical sampling periods.

Year	Minimum	Maximum	Mean
1989	1.26	1.28	1.27
1990	4.54	4.54	4.54
1991	14.30	14.30	14.30
1992	4.58	5.96	5.27
1993	1.28	1.95	1.62
1994	2.82	6.37	4.09
1995	1.94	2.89	2.45
1996	1.09	2.37	1.63
1997	1.47	2.01	1.76
1998	1.61	5.05	2.74
1999	0.66	3.08	2.11
2000	1.66	4.15	2.77

Table 2.

PLEASANT LAKE

DEERFIELD

Phytoplankton species and relative percent abundance.

Summary for current and historical sampling seasons.

Date of Sample	Species Observed	Relative % Abundance
07/24/1989	TABELLARIA	28
	DINOBRYON	27
	PERIDINIUM	
07/25/1990	TABELLARIA	93
08/27/1991	ASTERIONELLA	43
	TABELLARIA	26
	CHRYSOSPHAERELLA	20
07/01/1992	CHRYSOSPHAERELLA	32
	PERIDINIUM	31
	TABELLARIA	23
06/25/1993	DINOBRYON	81
06/13/1994	UROGLENOPSIS	35
	DINOBRYON	30
	TABELLERIA	16
06/09/1995	TABELLARIA	38
	DINOBRYON	27
	ASTERIONELLA	17
06/05/1996	SYNURA	54
	ANABAENA	25
	UROGLENOPSIS	6
07/02/1996	SYNURA	80
	UROGLENOPSIS	11
	ASTERIONELLA	2
06/10/1997	DINOBRYON	24
	TABELLARIA	17
	ANABAENA	16
05/13/1998	DINOBRYON	76
	TRACHELOMONAS	4

Table 2.

PLEASANT LAKE

DEERFIELD

Phytoplankton species and relative percent abundance.

Summary for current and historical sampling seasons.

Date of Sample	Species Observed	Relative % Abundance
06/16/1998	SYNURA	22
	STAURASTRUM	22
	PERIDINIUM	12
07/28/1998	STAURASTRUM	36
	TABELLARIA	31
	DINOBRYON	19
05/14/1999	PERIDINIUM	14
	TABELLARIA	10
	ASTERIONELLA	5
05/25/1999	DINOBRYON	57
	PERIDINIUM	14
	TABELLARIA	12
06/10/1999	CHRYSOSPHAERELLA	48
	DINOBRYON	20
	TABELLARIA	15
06/24/1999	CHRYSOSPHAERELLA	46
	DINOBRYON	33
	TABELLARIA	11
07/08/1999	STAURASTRUM	39
	DINOBRYON	32
	TABELLARIA	15
08/26/1999	DINOBRYON	70
	ASTERIONELLA	12
	TABELLARIA	9
10/05/1999	ASTERIONELLA	29
	TABELLARIA	20
	STAURASTRUM	20
06/08/2000	UROGLENOPSIS	27
	SYNURA	24
	DINOBRYON	18
06/21/2000	SYNURA	39
	DINOBRYON	35
	ANABAENA	11

Table 2.

PLEASANT LAKE

DEERFIELD

Phytoplankton species and relative percent abundance.

Summary for current and historical sampling seasons.

Date of Sample	Species Observed	Relative % Abundance
07/13/2000	CHRYSOSPHAERELLA	44
	SYNURA	27
	DINOBRYON	19
07/25/2000	CHRYSOSPHAERELLA	39
	TABELLARIA	20
	STAURASTRUM	16
08/08/2000	DINOBRYON	45
	TABELLARIA	33
	SYNURA	14
08/22/2000	DINOBRYON	60
	TABELLARIA	25
	SYNURA	4
09/14/2000	CHRYSOSPHAERELLA	59
	TABELLARIA	16
	DINOBRYON	11

Table 3.

PLEASANT LAKE

DEERFIELD

Summary of current and historical Secchi Disk transparency results (in meters).

Year	Minimum	Maximum	Mean
1989	6.2	7.5	6.8
1990	5.6	5.6	5.6
1991	4.5	5.5	5.0
1992	4.5	7.0	5.7
1993	5.3	7.0	6.4
1994	5.5	7.9	6.6
1995	6.0	7.8	7.1
1996	6.4	8.0	7.2
1997	5.8	6.4	6.1
1998	4.8	7.3	6.1
1999	5.6	8.4	7.1
2000	5.6	8.0	6.6

Table 4.

PLEASANT LAKE

DEERFIELD

pH summary for current and historical sampling seasons.
Values in units, listed by station and year.

Station	Year	Minimum	Maximum	Mean
107 INLET				
	1989	6.00	6.03	6.01
	1990	6.23	6.23	6.23
	1991	5.70	6.13	5.86
	1992	6.14	6.45	6.29
	1993	6.06	6.17	6.13
	1994	5.96	6.32	6.16
	1995	5.85	5.99	5.92
	1996	5.39	5.98	5.60
	1997	6.15	6.23	6.19
	1998	4.92	6.20	5.46
	2000	5.14	6.17	5.52
ATHERTON BK				
	2000	4.27	4.36	4.32
ATHERTON BROOK				
	1994	4.38	4.38	4.38
	1997	4.51	4.51	4.51
	2000	4.34	4.40	4.37
CLARKS BK				
	2000	4.69	4.69	4.69
CLARKS BROOK				
	1989	4.88	4.88	4.88
	1990	4.61	4.61	4.61

Table 4.

PLEASANT LAKE

DEERFIELD

pH summary for current and historical sampling seasons.
Values in units, listed by station and year.

Station	Year	Minimum	Maximum	Mean
	1991	4.50	4.53	4.51
	1992	4.73	5.84	4.96
	1993	4.29	5.10	4.50
	1994	4.59	6.30	4.84
	1995	4.88	5.82	5.13
	1996	4.48	4.86	4.63
	1997	4.84	4.86	4.85
	1998	4.53	4.61	4.57
	2000	4.53	4.90	4.73
DAM				
	1989	6.04	6.24	6.13
	1990	6.39	6.39	6.39
	1991	6.31	6.31	6.31
	1992	6.29	6.36	6.32
	1993	6.36	6.37	6.37
	1994	6.14	6.30	6.22
	1995	6.07	6.30	6.18
	1996	5.98	6.36	6.14
	1997	6.26	6.28	6.27
	1998	6.05	6.38	6.23
	2000	5.48	6.40	5.96
EPILIMNION				
	1989	6.04	6.04	6.04
	1990	6.26	6.26	6.26
	1991	6.28	6.30	6.29
	1992	6.17	6.37	6.24

Table 4.

PLEASANT LAKE

DEERFIELD

pH summary for current and historical sampling seasons.
Values in units, listed by station and year.

Station	Year	Minimum	Maximum	Mean
	1993	6.22	6.55	6.37
	1994	6.14	6.47	6.31
	1995	6.18	6.42	6.32
	1996	5.78	6.06	5.93
	1997	6.09	6.68	6.36
	1998	6.13	6.46	6.26
	1999	6.05	6.40	6.25
	2000	6.13	6.85	6.39
FARRELLY BROOK				
	1989	6.14	6.14	6.14
	1990	5.96	5.96	5.96
	1991	6.20	6.63	6.36
	1992	5.70	6.80	6.00
	1993	5.62	6.58	5.98
	1994	5.93	6.70	6.16
	1995	5.74	5.82	5.78
	1996	5.29	5.71	5.45
	1997	6.00	6.24	6.10
	1998	4.87	5.71	5.24
	2000	4.97	7.16	5.51
HYPOLIMNION				
	1989	5.67	6.17	5.85
	1990	5.86	5.86	5.86
	1991	6.08	6.20	6.14
	1992	5.81	6.40	6.07
	1993	5.58	6.16	5.80

Table 4.

PLEASANT LAKE

DEERFIELD

pH summary for current and historical sampling seasons.
Values in units, listed by station and year.

Station	Year	Minimum	Maximum	Mean
	1994	5.87	5.91	5.89
	1995	5.11	6.22	5.51
	1996	5.30	6.00	5.54
	1997	6.01	6.02	6.01
	1998	5.66	6.60	5.91
	1999	5.69	6.23	5.90
	2000	5.68	6.33	5.82
LOON COVE				
	1989	6.28	6.29	6.28
	1990	6.34	6.34	6.34
	1991	5.80	6.29	5.98
	1992	6.33	6.48	6.41
	1993	5.80	6.48	5.96
	1994	6.20	6.41	6.26
	1995	6.22	6.30	6.26
	1996	5.98	6.40	6.14
	1997	6.05	6.33	6.17
	1998	5.13	6.50	5.74
	2000	5.19	6.36	5.73
METALIMNION				
	1989	6.08	6.17	6.12
	1990	5.94	5.94	5.94
	1991	5.80	6.41	6.01
	1992	6.05	6.26	6.16
	1993	6.10	6.33	6.22
	1994	6.12	6.24	6.18

Table 4.

PLEASANT LAKE

DEERFIELD

pH summary for current and historical sampling seasons.
Values in units, listed by station and year.

Station	Year	Minimum	Maximum	Mean
	1995	5.71	6.28	5.87
	1996	5.64	6.05	5.78
	1997	6.06	6.16	6.11
	1998	5.52	6.49	5.79
	1999	5.68	6.42	5.90
	2000	5.74	6.20	5.97
PHILBRICK BROOK				
	1998	5.20	5.20	5.20
	2000	4.68	5.32	4.94
VEASEY BROOK				
	1998	4.43	4.43	4.43
	2000	5.14	5.88	5.49
WILSON'S BROOK				
	1989	6.30	6.51	6.39
	1990	6.76	6.76	6.76
	1991	6.40	6.86	6.57
	1992	6.28	6.66	6.40
	1993	6.44	6.76	6.57
	1994	6.07	6.75	6.29
	1995	6.10	6.43	6.24
	1996	6.11	6.46	6.22
	1997	6.46	6.66	6.55
	1998	4.94	6.61	5.70
	2000	5.38	6.47	5.81

Table 5.

PLEASANT LAKE

DEERFIELD

Summary of current and historical Acid Neutralizing Capacity.
Values expressed in mg/L as CaCO .

Epilimnetic Values

Year	Minimum	Maximum	Mean
1989	0.60	0.80	0.70
1990	1.00	1.00	1.00
1991	0.80	1.20	1.00
1992	1.20	1.50	1.33
1993	1.30	1.70	1.53
1994	1.10	1.60	1.30
1995	1.30	2.60	1.83
1996	1.10	1.50	1.37
1997	1.20	1.40	1.33
1998	1.20	2.00	1.48
1999	1.40	2.00	1.66
2000	1.20	1.80	1.50

Table 6.

PLEASANT LAKE

DEERFIELD

Specific conductance results from current and historic sampling seasons. Results in uMhos/cm.

Station	Year	Minimum	Maximum	Mean
107 INLET				
	1989	35.9	87.2	61.5
	1990	70.5	70.5	70.5
	1991	41.4	75.6	58.5
	1992	32.5	132.1	77.2
	1993	84.5	136.9	108.6
	1994	46.1	147.8	80.5
	1995	51.7	832.5	455.7
	1996	37.9	713.0	267.5
	1997	27.8	70.2	49.0
	1998	27.5	205.0	94.9
	2000	34.9	87.2	55.3
ATHERTON BK				
	2000	62.5	90.8	75.6
ATHERTON BROOK				
	1994	48.2	48.2	48.2
	1997	41.2	41.2	41.2
	2000	80.6	83.7	82.2
CLARKS BK				
	2000	41.7	41.7	41.7
CLARKS BROOK				
	1989	44.7	44.7	44.7
	1990	71.8	71.8	71.8
	1991	50.7	77.9	64.3
	1992	44.0	49.2	46.3

Table 6.

PLEASANT LAKE

DEERFIELD

Specific conductance results from current and historic sampling seasons. Results in uMhos/cm.

Station	Year	Minimum	Maximum	Mean
	1993	48.9	123.3	91.7
	1994	39.7	79.5	63.3
	1995	34.5	60.9	47.7
	1996	35.5	37.0	36.2
	1997	32.0	49.8	40.9
	1998	27.6	57.0	42.9
	2000	37.4	58.4	43.3
DAM				
	1989	57.4	58.8	58.1
	1990	64.4	64.4	64.4
	1991	98.6	98.6	98.6
	1992	64.4	64.6	64.5
	1993	65.7	67.2	66.6
	1994	70.2	72.4	70.9
	1995	66.9	70.5	69.2
	1996	68.9	70.1	69.5
	1997	63.3	63.7	63.5
	1998	60.5	62.5	61.6
	2000	65.2	71.4	67.4
EPILIMNION				
	1989	57.0	57.9	57.4
	1990	62.6	62.6	62.6
	1991	62.3	63.2	62.7
	1992	64.7	65.1	64.9
	1993	65.9	67.5	66.7

Table 6.

PLEASANT LAKE

DEERFIELD

Specific conductance results from current and historic sampling seasons. Results in uMhos/cm.

Station	Year	Minimum	Maximum	Mean
	1994	69.5	72.0	71.0
	1995	20.0	70.3	53.0
	1996	69.0	70.9	69.7
	1997	60.6	66.0	63.2
	1998	61.0	63.5	62.1
	1999	24.0	67.7	59.8
	2000	68.9	69.7	69.2
FARRELLY BROOK				
	1989	704.5	704.5	704.5
	1990	777.9	777.9	777.9
	1991	53.2	627.9	340.5
	1992	164.5	1349.0	841.1
	1993	863.9	1088.0	945.7
	1994	91.0	1200.0	573.0
	1995	534.0	1028.0	781.0
	1996	325.8	346.3	336.0
	1997	694.0	744.0	719.0
	1998	57.4	664.0	294.9
	2000	11.0	292.0	121.4
HYPOLIMNION				
	1989	56.9	58.0	57.4
	1990	63.6	63.6	63.6
	1991	64.1	73.7	68.9
	1992	64.3	80.0	71.3
	1993	68.0	73.2	69.8

Table 6.

PLEASANT LAKE

DEERFIELD

Specific conductance results from current and historic sampling seasons. Results in uMhos/cm.

Station	Year	Minimum	Maximum	Mean
	1994	68.4	73.1	70.9
	1995	68.3	75.8	70.8
	1996	68.7	71.7	69.9
	1997	61.1	65.9	63.5
	1998	64.2	72.0	67.1
	1999	25.1	79.7	63.1
	2000	68.9	83.3	72.5
LOON COVE				
	1989	55.7	58.2	56.9
	1990	64.4	64.4	64.4
	1991	60.1	61.0	60.5
	1992	40.8	65.9	57.5
	1993	59.9	80.9	68.8
	1994	43.8	81.4	65.1
	1995	82.7	100.1	91.4
	1996	48.5	93.4	74.3
	1997	28.3	90.1	59.2
	1998	25.2	62.6	46.4
	2000	60.1	84.2	72.1
METALIMNION				
	1989	56.3	58.0	57.1
	1990	61.4	61.4	61.4
	1991	63.2	64.4	63.8
	1992	62.7	64.8	64.1
	1993	65.2	67.5	66.4

Table 6.

PLEASANT LAKE

DEERFIELD

Specific conductance results from current and historic sampling seasons. Results in uMhos/cm.

Station	Year	Minimum	Maximum	Mean
	1994	68.9	72.2	70.1
	1995	67.5	70.2	69.0
	1996	68.6	70.0	69.1
	1997	61.5	62.7	62.1
	1998	58.9	63.2	60.6
	1999	24.0	67.7	59.2
	2000	68.7	71.5	69.6
PHILBRICK BROOK				
	1998	16.3	16.3	16.3
	2000	16.4	30.4	21.9
VEASEY BROOK				
	1998	40.6	40.6	40.6
	2000	48.8	179.8	144.8
WILSON'S BROOK				
	1989	63.8	71.6	67.7
	1990	73.0	73.0	73.0
	1991	53.4	80.2	66.8
	1992	10.1	122.3	67.3
	1993	84.6	142.6	105.9
	1994	67.8	136.4	102.5
	1995	67.5	134.5	108.3
	1996	49.6	100.6	75.1
	1997	61.8	89.8	75.8
	1998	31.0	105.2	72.5

Table 6.

PLEASANT LAKE
DEERFIELD

Specific conductance results from current and historic sampling seasons. Results in uMhos/cm.

Station	Year	Minimum	Maximum	Mean
	2000	43.5	145.8	61.0

Table 8.

PLEASANT LAKE

DEERFIELD

Summary historical and current sampling season Total Phosphorus data. Results in ug/L.

Station	Year	Minimum	Maximum	Mean
107 INLET				
	1989	1	8	4
	1990	46	46	46
	1991	16	26	21
	1992	9	20	14
	1993	16	18	17
	1994	20	37	27
	1995	15	19	17
	1996	6	15	11
	1997	8	23	15
	1998	3	33	17
	1999	36	36	36
	2000	< 5	50	11
ATHERTON BK				
	2000	< 5	14	7
ATHERTON BROOK				
	1994	17	17	17
	1997	12	12	12
	2000	< 5	7	6
CLARKS BK				
	2000	10	10	10
CLARKS BROOK				
	1989	38	38	38
	1990	20	20	20
	1991	20	27	23

Table 8.

PLEASANT LAKE

DEERFIELD

Summary historical and current sampling season Total Phosphorus data. Results in ug/L.

Station	Year	Minimum	Maximum	Mean
	1992	20	32	25
	1993	14	23	17
	1994	9	28	19
	1995	13	34	23
	1996	7	16	11
	1997	10	110	60
	1998	9	43	26
	2000	< 5	14	7
DAM				
	1989	2	9	5
	1990	19	19	19
	1991	21	21	21
	1992	2	3	2
	1993	5	6	5
	1994	6	11	8
	1995	10	18	13
	1996	2	9	5
	1997	5	7	6
	1998	3	7	4
	1999	7	7	7
	2000	< 5	11	5
EPILIMNION				
	1989	2	4	3
	1990	5	5	5
	1991	6	8	7

Table 8.

PLEASANT LAKE

DEERFIELD

Summary historical and current sampling season Total Phosphorus data. Results in ug/L.

Station	Year	Minimum	Maximum	Mean
	1992	3	5	4
	1993	6	8	7
	1994	4	30	13
	1995	6	9	7
	1996	4	7	5
	1997	3	17	8
	1998	3	10	6
	1999	2	7	5
	2000	< 5	8	6
FARRELLY BROOK				
	1989	9	9	9
	1990	35	35	35
	1991	11	93	52
	1992	11	3520	1182
	1993	7	360	204
	1994	13	590	223
	1995	7	14	10
	1996	2	9	5
	1997	4	5	4
	1998	7	20	12
	2000	< 5	16	7
HYPOLIMNION				
	1989	5	11	8
	1990	11	11	11
	1991	14	21	17

Table 8.

PLEASANT LAKE

DEERFIELD

Summary historical and current sampling season Total Phosphorus data. Results in ug/L.

Station	Year	Minimum	Maximum	Mean
	1992	9	43	24
	1993	15	156	62
	1994	11	15	12
	1995	11	20	14
	1996	7	10	8
	1997	7	10	8
	1998	4	30	14
	1999	6	13	9
	2000	5	14	8
LOON COVE				
	1989	50	50	50
	1990	49	49	49
	1991	51	113	82
	1992	31	108	69
	1993	60	110	79
	1994	8	91	62
	1995	91	103	97
	1996	53	150	95
	1997	47	83	65
	1998	13	114	64
	1999	218	218	218
	2000	14	270	61
METALIMNION				
	1989	6	7	6
	1990	12	12	12

Table 8.

PLEASANT LAKE

DEERFIELD

Summary historical and current sampling season Total Phosphorus data. Results in ug/L.

Station	Year	Minimum	Maximum	Mean
	1991	7	16	11
	1992	2	16	9
	1993	5	6	5
	1994	7	17	12
	1995	8	11	9
	1996	3	8	6
	1997	6	7	6
	1998	4	10	6
	1999	3	10	6
	2000	5	10	7
PHILBRICK BROOK				
	1998	27	27	27
	2000	< 5	56	14
VEASEY BROOK				
	1998	13	13	13
	2000	< 5	610	75
WILSON'S BROOK				
	1989	6	9	7
	1990	12	12	12
	1991	8	17	12
	1992	4	9	6
	1993	4	7	6
	1994	9	13	11
	1995	6	11	8
	1996	2	6	4

Table 8.

PLEASANT LAKE

DEERFIELD

Summary historical and current sampling season Total Phosphorus data. Results in ug/L.

Station	Year	Minimum	Maximum	Mean
	1997	7	11	9
	1998	5	9	7
	1999	9	9	9
	2000	< 5	8	5

Table 9.

PLEASANT LAKE

DEERFIELD

Current year dissolved oxygen and temperature data.

Depth (meters)	Temperature (celsius)	Dissolved Oxygen (mg/L)	Saturation (%)
		June 8, 2000	
0.1	16.6	9.6	96.0
1.0	16.5	9.5	95.0
2.0	16.4	9.6	96.0
3.0	16.3	9.6	96.0
4.0	16.3	9.7	97.0
5.0	16.2	9.6	96.0
6.0	16.2	9.7	97.0
7.0	15.5	9.7	95.0
8.0	15.0	10.0	99.0
9.0	13.0	9.7	91.0
10.0	11.7	8.9	61.0
11.0	11.2	8.6	77.0
12.0	10.7	7.5	66.0
13.0	10.5	7.2	63.0
14.0	10.4	6.5	57.0
15.0	10.4	6.3	55.0
16.0	10.4	0.9	8.0
17.0	11.3	0.7	6.0
		June 21, 2000	
0.1	20.5	9.6	104.0
1.0	20.6	9.6	104.0
2.0	20.5	9.6	104.0
3.0	20.4	9.6	104.0
4.0	20.3	9.7	105.0
5.0	18.6	10.0	103.0
6.0	17.8	10.2	105.0
7.0	16.5	10.5	105.0
8.0	15.1	10.0	97.0
9.0	13.2	8.5	80.0

Table 9.

PLEASANT LAKE

DEERFIELD

Current year dissolved oxygen and temperature data.

Depth (meters)	Temperature (celsius)	Dissolved Oxygen (mg/L)	Saturation (%)
		June 21, 2000	
10.0	12.5	8.0	74.0
11.0	12.1	7.4	68.0
12.0	11.3	6.6	59.0
13.0	11.3	6.0	54.0
14.0	10.8	5.1	45.0
15.0	10.8	4.8	42.0
16.0	10.8	4.8	42.0
17.0	10.9	4.8	42.0
18.0	11.0	4.8	43.0
		July 13, 2000	
0.1	22.4	6.0	69.0
1.0	22.4	6.0	69.0
2.0	22.4	6.0	69.0
3.0	22.3	6.0	69.0
4.0	22.3	6.0	69.0
5.0	22.1	6.1	70.0
6.0	22.0	6.1	70.0
7.0	21.5	6.2	69.0
8.0	16.5	7.2	73.0
9.0	14.4	5.3	51.0
10.0	13.3	4.2	40.0
11.0	12.5	3.4	31.0
12.0	12.0	2.8	26.0
13.0	11.7	2.4	22.0
14.0	11.4	1.8	16.0
15.0	11.3	1.3	12.0
16.0	11.2	1.2	11.0
17.0	11.3	1.1	10.0
18.0	11.3	1.0	9.0

Table 9.

PLEASANT LAKE

DEERFIELD

Current year dissolved oxygen and temperature data.

Depth (meters)	Temperature (celsius)	Dissolved Oxygen (mg/L)	Saturation (%)
		July 13, 2000	
19.0	11.3	0.7	6.0
		July 25, 2000	
0.1	22.8	7.2	82.0
1.0	22.8	7.3	83.0
2.0	22.8	7.3	83.0
3.0	22.6	7.3	83.0
4.0	22.5	7.3	83.0
5.0	22.3	7.2	82.0
6.0	22.2	7.2	82.0
7.0	21.8	7.3	81.0
8.0	20.1	8.0	88.0
9.0	16.0	6.8	68.0
10.0	14.1	4.1	40.0
11.0	13.1	3.2	30.0
12.0	12.0	2.3	21.0
13.0	11.5	1.3	12.0
14.0	11.4	1.0	9.0
15.0	11.3	0.7	6.0
16.0	11.3	0.7	6.0
17.0	11.4	0.7	6.0
18.0	11.5	0.8	7.0
		August 8, 2000	
0.1	22.9	8.6	97.0
1.0	22.9	8.6	97.0
2.0	22.9	8.6	97.0
3.0	22.8	8.7	98.0
4.0	22.6	8.7	98.0
5.0	22.5	8.7	98.0
6.0	22.1	8.7	98.0

Table 9.

PLEASANT LAKE

DEERFIELD

Current year dissolved oxygen and temperature data.

Depth (meters)	Temperature (celsius)	Dissolved Oxygen (mg/L)	Saturation (%)
		August 8, 2000	
7.0	21.8	8.7	96.0
8.0	21.0	8.6	95.0
9.0	17.1	6.0	62.0
10.0	14.6	3.7	65.0
11.0	13.6	2.9	27.0
12.0	12.8	2.3	21.0
13.0	12.2	1.4	13.0
14.0	11.8	1.0	9.0
15.0	11.5	0.5	4.0
16.0	11.4	0.1	1.0
17.0	11.4	0.1	1.0
18.0	11.5	0.1	1.0
		August 22, 2000	
0.1	21.3	9.0	101.0
1.0	21.3	9.0	99.0
2.0	21.3	8.7	97.0
3.0	21.3	8.3	92.0
4.0	21.3	8.1	91.0
5.0	21.2	8.8	97.0
6.0	21.2	8.6	96.0
7.0	21.0	8.3	93.0
8.0	21.0	8.2	91.0
9.0	19.9	7.1	77.0
10.0	14.9	2.0	20.0
11.0	13.6	1.5	14.0
12.0	12.7	1.0	9.0
13.0	12.0	0.4	3.0
14.0	11.4	0.3	3.0
15.0	11.3	0.3	3.0

Table 9.

PLEASANT LAKE

DEERFIELD

Current year dissolved oxygen and temperature data.

Depth (meters)	Temperature (celsius)	Dissolved Oxygen (mg/L)	Saturation (%)
		August 22, 2000	
16.0	11.2	0.4	3.0
17.0	11.2	0.4	4.0
18.0	11.2	0.4	4.0
		September 14, 2000	
0.1	21.3	6.5	72.0
1.0	21.3	6.5	72.0
2.0	21.3	6.5	72.0
3.0	21.3	6.5	72.0
4.0	21.3	6.5	72.0
5.0	21.3	6.5	72.0
6.0	21.2	6.4	71.0
7.0	21.1	6.3	71.0
8.0	20.8	5.7	61.0
9.0	20.0	4.0	44.0
10.0	17.1	0.2	2.0
11.0	14.4	0.2	2.0
12.0	13.2	0.2	2.0
13.0	12.2	0.2	2.0
14.0	11.6	0.2	2.0
15.0	11.5	0.3	2.0
16.0	11.4	0.3	3.0
17.0	11.4	0.4	3.0

Table 10.

PLEASANT LAKE

DEERFIELD

Historic Hypolimnetic dissolved oxygen and temperature data.

Date	Depth (meters)	Temperature (celsius)	Dissolved Oxygen (mg/L)	Saturation (%)
July 24, 1989	18.0	11.0	0.1	1.0
July 25, 1990	19.0	9.2	-0.5	-4.3
August 27, 1991	19.5	11.0	0.0	0.0
July 1, 1992	15.0	9.7	0.0	0.0
June 25, 1993	18.0	9.0	2.2	19.0
June 13, 1994	19.0	11.2	5.4	49.0
June 9, 1995	17.0	10.1	6.7	58.0
June 5, 1996	13.5	10.4	8.0	69.0
July 2, 1996	19.0	10.2	5.2	46.0
June 10, 1997	15.0	12.0	6.0	56.0
May 13, 1998	17.0	8.8	10.9	90.0
June 16, 1998	18.0	10.2	4.6	40.0
June 10, 1999	14.0	12.1	12.4	115.5
June 8, 2000	17.0	11.3	0.7	6.0
June 21, 2000	18.0	11.0	4.8	43.0
July 13, 2000	19.0	11.3	0.7	6.0
July 25, 2000	18.0	11.5	0.8	7.0
August 8, 2000	18.0	11.5	0.1	1.0
August 22, 2000	18.0	11.2	0.4	4.0
September 14, 2000	17.0	11.4	0.4	3.0

Table 11.

PLEASANT LAKE

DEERFIELD

Summary of current year and historic turbidity sampling.
Results in NTU's.

Station	Year	Minimum	Maximum	Mean
107 INLET				
	1997	0.2	1.7	0.9
	1998	0.1	5.1	1.9
	2000	0.0	2.3	0.4
ATHERTON BK				
	2000	0.1	2.3	0.6
ATHERTON BROOK				
	1997	0.1	0.1	0.1
	2000	0.4	0.4	0.4
CLARKS BK				
	2000	0.1	0.1	0.1
CLARKS BROOK				
	1997	0.2	65.0	32.6
	1998	0.4	1.7	1.0
	2000	0.1	0.5	0.3
DAM				
	1997	0.3	0.3	0.3
	1998	0.2	0.3	0.3
	2000	0.2	1.1	0.4
EPILIMNION				
	1997	0.3	2.3	0.9
	1998	0.2	0.4	0.3
	1999	0.2	0.3	0.3
	2000	0.1	0.3	0.2

Table 11.

PLEASANT LAKE

DEERFIELD

Summary of current year and historic turbidity sampling.
Results in NTU's.

Station	Year	Minimum	Maximum	Mean
FARRELLY BROOK				
	1997	0.2	1.6	0.9
	1998	0.1	2.8	1.1
	2000	0.2	28.0	3.7
HYPOLIMNION				
	1997	0.3	1.8	1.1
	1998	0.5	4.1	2.2
	1999	0.5	0.9	0.8
	2000	0.3	2.3	0.9
LOON COVE				
	1997	0.7	1.6	1.1
	1998	1.7	5.5	3.0
	2000	0.2	3.2	1.0
METALIMNION				
	1997	0.4	0.5	0.4
	1998	0.4	0.7	0.5
	1999	0.5	0.9	0.6
	2000	0.3	0.8	0.4
PHILBRICK BROOK				
	1998	0.3	0.3	0.3
	2000	0.0	1.1	0.4
VEASEY BROOK				
	1998	2.0	2.0	2.0
	2000	0.2	**.*	15.7

Table 11.

PLEASANT LAKE

DEERFIELD

Summary of current year and historic turbidity sampling.
Results in NTU's.

Station	Year	Minimum	Maximum	Mean
WILSON'S BROOK				
	1997	0.1	0.4	0.2
	1998	0.1	1.4	0.4
	2000	0.0	0.4	0.2